

REMARKS

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Claim Amendments

Claim 3 has been rewritten in independent form, and claim 1 has been rewritten in product-by-process format, and is dependent upon claim 3. Additionally, claim 3 indicates that the initial reaction liquid is free of an electrolyte and a mineral acid. Further, the claims have been amended to indicate the use, i.e., for making a coating liquid for an ink-jet recording sheet.

These amendments are supported by Applicants' specification, e.g., page 1, lines 7-20 and page 11, lines 16-24.

Patentability Arguments

The patentability of the present invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Rejections Under 35 U.S.C. § 102(b) and/or 35 U.S.C. § 103(a)

Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Chevallier et al. (WO 98/54090; using corresponding national stage entry US 6,468,493 for citation purposes). Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chevallier et al. as applied to claim 1 above. Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Chevallier et al. as applied to claim 1 above, and further in view of Alexander et al. (US 2,601,235). Claims 5 and 7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chevallier et al. as applied to claim 1 above, and further in view of Hellring et al. (US 6,656,241). Claims 6-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chevallier et al. in view of Alexander et al. as applied to claim 5 above, and further in view of Kono et al. (US 6,417,264). Claims 6 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chevallier et al. in view of Hellring et al. as applied to claim 5 above, and further in view of Kono et al. Claims 9-12 are rejected

under 35 U.S.C. § 103(a) as being unpatentable over Chevallier et al. as applied to claim 1 above, and further in view of Kono et al. and Ichinose et al. (US 2003/0039808).

Claim 1 is also rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over McKeown et al. (JP 05-208808). Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McKeown et al. as applied to claim 1 above. Claims 5 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McKeown et al. as applied to claim 1 above, and further in view of Alexander et al. Claims 5-7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McKeown et al. as applied to claim 1 above, and further in view of Hellring et al. Claims 7 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McKeown et al. in view of Alexander et al. as applied to claims 5 and 6 above, and further in view of Kono et al. (US 6,417,264). Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over McKeown et al. in view of Hellring et al. as applied to claims 5 and 6 above, and further in view of Kono et al. Claims 9-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McKeown et al. as applied to claim 1 above, and further in view of Kono et al. and Ichinose et al.

Each of these rejections is respectfully traversed.

The inventions of Applicants' amended claims 1-3 and 5-12 require the following characteristic features:

- (1) They relate to an easily dispersible cake of precipitated silica (specific surface area: at least 220 m²/g) for making a coating liquid for an ink-jet recording sheet, and
- (2) The initial reaction liquid which is used for the production of said cake is free of an electrolyte and a mineral acid, thus inhibiting the formation of silica whose specific surface area is smaller than 220 m²/g.

The newly cited Chevallier et al. reference relates to silica in the form of powder for reinforcing elastomers. The reference does not relate to the production of an easily dispersible cake of precipitated silica for making a coating liquid for an inkjet recording sheet. In the Chevallier et al. reference, a cake is formed at an intermediate stage of the process for the production of silica in the form of powder. However, since Chevallier et al. aim for the production of silica in the form of powder for reinforcing elastomers, it does not matter whether

said cake is easily dispersible or not. Additionally, it is unnecessary that the silica should have a specific surface area of at least $220 \text{ m}^2/\text{g}$, e.g., it could be $185 \text{ m}^2/\text{g}$.

Furthermore, as is seen from the claims and Examples of the reference, Chevallier et al. essentially employ an initial reaction liquid which contains a large amount of electrolyte, e.g., sodium sulphate. As mentioned previously, Applicants' claims have been amended to clarify that the initial reaction liquid which is used for the production of the cake of precipitated silica is **free from an electrolyte and a mineral acid**. Accordingly, it is clear that the teachings of Chevallier et al. are quite distinct from the invention of the present claims.

On page 27 of the outstanding Office Action, the Examiner states, "the initial application does not rule out the use of an electrolyte or acid in the initial reaction liquid..." However, in view of the above-discussed claim amendments, it is clear that the process of Applicants' claims **excludes** the presence of an electrolyte and a mineral acid in the initial reaction liquid. Accordingly, the large amount of electrolyte which is present in the initial reaction liquid of the Chevallier et al. process is prohibited by the process of Applicants' independent claim 3.

The McKeown et al. reference relates to powdery silica to be used as abrasive agents in toothpaste compositions. The reference does not relate to the production of cake for making a coating liquid for an inkjet recording sheet. In the McKeown et al. reference, a cake is formed at an intermediate stage of the process for the production of silica in the form of powder. However, since McKeown et al. aim for the production of powdery silica to be used as abrasive agents in toothpaste compositions, it does not matter whether the cake is easily dispersible or not. Additionally, it is unnecessary that the silica should have a specific surface area of at least $220 \text{ m}^2/\text{g}$, e.g., it could be $100 \text{ m}^2/\text{g}$.

Furthermore, as is seen from the claims and Examples, McKeown et al. essentially employ an initial reaction liquid which contains a large amount of electrolyte, e.g., sodium chloride. As mentioned previously, Applicants' claims have been amended to clarify that the initial reaction liquid which is used for the production of the cake of precipitated silica is **free from an electrolyte and a mineral acid**. Accordingly, the large amount of electrolyte which is present in the initial reaction liquid of the McKeown et al. process is prohibited by the process of Applicants' independent claim 3.

Chevallier et al. and McKeown et al. only contain the above-mentioned disclosures. It is evident that the process of independent claim 3 is novel over each of these references. Additionally, the products and processes of dependent claims 1, 2 and 5-12 are also patentable over each of these references.

Furthermore, since there is such a great difference in structure and effects (use) between the disclosures of Chevallier et al. and McKeown et al. and that of the Applicants' claims, one of ordinary skill in the art would not have been motivated to arrive at the subject matter of Applicants' claims based upon these references, i.e., the subject matter of claims 1-3 and 5-12 is not obvious over these references.

Additionally, none of the secondary references relied upon by the Examiner remedy the deficiencies of Chevallier et al. or McKeown et al. Please consider the following comments in this regard.

Alexander et al. aim at the production of a built-up silica, not a silica cake. In Alexander et al., silica sol is essentially used as an initial reaction liquid for the production of a built-up silica. Furthermore, the built-up silica is used as a reinforcing filler for rubber. Alexander et al. are silent regarding a coating liquid for an inkjet recording sheet.

As discussed on pages 9 and 10 of the response filed November 20, 2009, the teachings of Helling et al. are quite different from the subject matter of Applicants' claims with respect to the initial reaction liquid. Additionally, the product which is disclosed in Helling et al. is a surface-modified silica-containing slurry for polishing a microelectronic substrate, not a coating liquid for an ink-jet recording sheet.

Kono et al. disclose a cationic polymer-modified silica dispersion by which to make a coating liquid for an inkjet recording sheet. As discussed in detail on pages 6-10 of the response filed July 6, 2009, the process of Kono et al. for the production of a dispersion is quite different from the process of Applicants' claim 3.

Lastly, Ichinose et al. only disclose a dispersion comprising silica, a binder and a cationic polymer in a polar solvent, by which to make a coating liquid for an ink-jet recording sheet. Accordingly, Ichinose et al. fail even to suggest an idea of using, as said silica, a silica cake which is prepared by the process as recited in Applicants' claim 3. Ichinose et al. only show that it has been publicly known to blend a binder with a coating liquid for an ink-jet recording sheet.

In view of the above comments, it is clear that the teachings of Alexander et al., Hellring et al., Kono et al. and Ichinose et al. fail to remedy the deficiencies of Chevallier et al. and McKeown et al. Specifically, none of the cited references, nor the cited combinations thereof, teach or suggest the characteristic features of Applicants' claimed invention, i.e., (1) an easily dispersible cake of precipitated silica (specific surface area: at least $220 \text{ m}^2/\text{g}$) for making a coating liquid for an ink-jet recording sheet, and (2) that the initial reaction liquid which is used for the production of said cake is free of an electrolyte and a mineral acid, thus inhibiting the formation of silica whose specific surface area is smaller than $220 \text{ m}^2/\text{g}$.

Accordingly, the subject matter of Applicants' claims is patentable over the cited references, and withdrawal of each of the rejections is respectfully requested.

Conclusion

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

Hirokatsu HAYASHI et al.

/Amy E. Schmid/

By 2010.07.19 11:50:53 -04'00'

Amy E. Schmid
Registration No. 55,965
Attorney for Applicants

AES/cbc
Washington, D.C. 20005-1503
Telephone (202) 721-8200
Facsimile (202) 721-8250
July 19, 2010